2022 Sheridan Angler Newsletter

"From the Bighorns to the Black Hills"

Special points of interest:

- Story Fish Hatchery Update - Producing and Trading Eggs
- Cloud Peak Wilderness Surveys
- Radio Telemetry; Tracking Migratory Fish of the Powder River and Clear Creek
- Habitat Projects in the Sheridan Region
- Fishing in Your Backyard
- AIS in Moss Balls

Inside this issue:

What to do with high water temperatures?

When you think of Wyoming, you certainly think of majestic mountains, rolling prairie and plains, picturesque landscapes, and wide open spaces. But when you venture out to take advantage of Wyoming's lakes, rivers, or reservoirs, do you ever wonder if you should be fishing? Catching and releasing a fish when water temperatures are high can lead to unintended mortality. Wyoming has had pretty decent water years since the long drought of the early 2000s. Over the last couple of years however, we have experienced below normal snowpack, less frequent rains, and above normal temperatures; resulting in decreased stream flows, elevated water temperatures, and forest fires. Fish, especially trout, are fairly fragile creatures that can suffer delayed mortality following release by an angler. This is exacerbated by how long the angler "plays" the fish, location where the fish was hooked (corner of the mouth or swallowed), and any other extenuating circumstances while releasing the fish (e.g., accidentally dropping, removal of their slime-coat, taking too long to take a photograph etc.). Periods of high water temperature add substantial additional stress to the fish.

Most anglers do a great job releasing the fish they catch with the utmost of care, but anglers can reduce or eliminate potential mortality by voluntarily choosing not to fish during periods of elevated water temperatures. As you might infer, water temperatures increase through the day as air temperatures rise and they will climb faster if stream flow or lake water levels are low. In 2021, Muddy Guard Reservoir #1 was at minimum pool and was experiencing very high water temperatures. Through news releases and signs, we asked anglers to not fish the reservoir until September and the response was very positive! So the next time you venture out to take advantage of Wyoming's excellent fisheries, consider fishing early mornings, and at higher elevations during the warmer summer months. Happy and safe fishing!

Turner Reservoir

Turner Reservoir refilling following dam repair. Fish will be stocked soon

Turner Reservoir is about 7 miles northeast of Osage in the Thunder Basin Grasslands. The reservoir was built by the Forest Service in 1992 and in 1993, Game and Fish began stocking fish. Largemouth Bass from Renner Reservoir in the Bighorn Basin were transplanted in 1993 and trout stocking began that year too. Every year from1993 through 2013, catchable sized trout were stocked to provide a fishery where few publically accessible waters exist. Growth was impressive with both trout and bass reaching over 16 inches.

In 2013, the dam began to leak and for several years the Forest Service looked for a solution and funding to get the reservoir full again. In late 2021, the dam was repaired and the water level has been increasing.

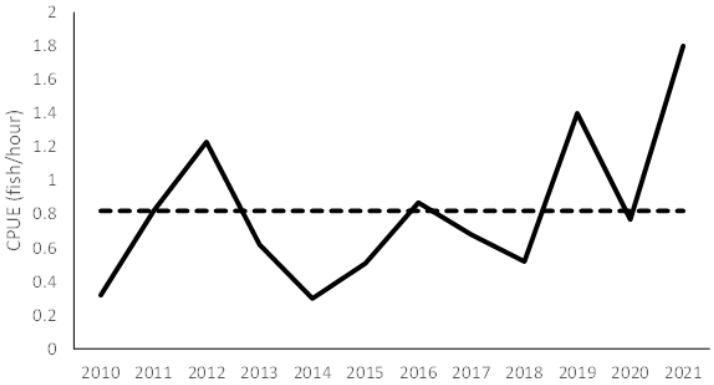
In early May 2022, Game and Fish plans to stock 600 catchable sized Rainbow Trout (up to 10 inches) so anglers once again can enjoy this fishery. Largemouth Bass will also be stocked in the near future. Get out and enjoy this fishery in 2022.

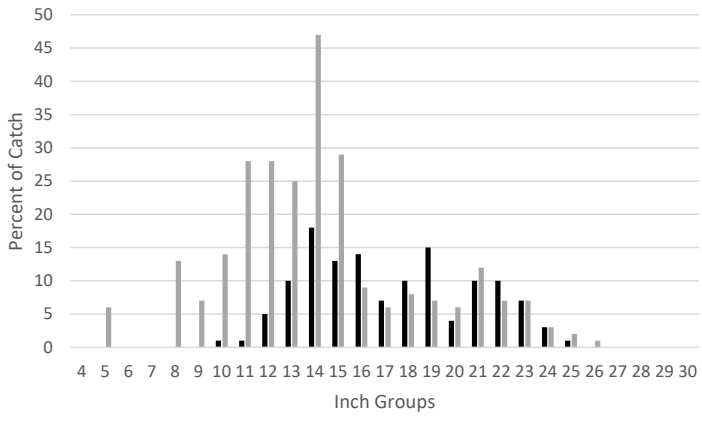
Keyhole Reservoir Update

A happy angler with a couple nice crappie.

We have had a really good run over the last ten or so years at Keyhole Reservoir. During the early to mid-2000s, water levels were as low as 28% of capacity (October 2006). Slowly, but surely, water levels crept upwards for the next five years, finally topping the spillway in 2012; 100% of capacity. Over the last decade, the fishery has benefited from the increased productivity. With higher water levels, plankton (microscopic algae) flourishes, providing food for zooplankton (small invertebrates that eat the plankton), in turn providing food for smaller fish (forage fish like Emerald and Spottail shiners and smaller game fish), and lastly, food for larger fish like Walleye, Northern Pike, crappie, and others. The higher water levels also increased the available spawning, rearing, cover, and feeding habitat; benefiting forage and game fish alike. While populations ebb and flow, we've certainly seen more consistency in the fish populations during this higher water period. Crappie, Walleye, Smallmouth Bass, Channel Catfish, and Northern Pike appear to be flourishing. The only game fish that are struggling right now are the smaller gamefish like Yellow Perch, Green Sunfish, and Bluegill. When numbers of larger predators are high, numbers of smaller fish decrease.

Over the last two years, northeastern Wyoming has certainly been drier and reservoir levels have dropped. As of ice-on in late 2021, Keyhole was 7 feet below full-pool, or 68% of reservoir capacity. With any luck, we will get some late prairie snowpack and spring rains to boost water levels back up and keep this fishery flourishing, and anglers happy.





***Top Right**: Number of fish caught per net hour for Walleye in our August sampling effort for the last 12 years. Over this time, the average has been 0.8 fish/hour (dashed line) and 2021 was a new record for Keyhole at 1.8 fish/hour. **Bottom Left**: A nice, healthy, 22 inch Keyhole Walleye. **Bottom Right**: Length frequency distributions for Walleye sampled in April (black bars), and August (gray bars). Generally, more large fish are captured in the spring than in August. This is a healthy Walleye population with numerous individuals in every size class.*

Habitat Projects in the Sheridan Region

Clear Creek Fish Passage above Interstate 25

A large concrete grade control structure (Figure 1) on Clear Creek just upstream of Interstate 25 in Buffalo was a long-standing barrier to upstream fish movements. For years, fish could swim downstream past the structure, but were kept from swimming back upstream to spawn or seek refuge from warm stream temperatures. In 2021, the concrete structure was removed and replaced with a series of alternating riffle structures and pool features along 700 feet of stream above I-25. The channel slope reduction provided over the longer course of riffle to pool features allows adult life stages of trout and native fish previously isolated downstream of the crossing to access upstream habitats. The work also enhanced stream habitat available to the public along 3.5 acres of the stream corridor owned by WYDOT. Partners involved with the rehabilitation included the Clear Creek Conservation District, WYDOT, WWNRT, WWDC, WGBGLC, WY Sportsmans Group and Powder River Flycasters.

Figure 1. Before and after channel grading following the removal of the concrete ramp on Clear Creek just upstream of Interstate-25.

Amsden Creek Beaver Dam Analogs

Until recently, a beaver family unit occupied Amsden Creek on the WHMA. Unfortunately, the complex of dams the family maintained began to deteriorate and were ultimately lost during high flows in spring 2019. However, beavers continue to be observed periodically along the creek, most recently in 2021, and the woody riparian habitat available on the WHMA remains sufficient to support a family unit. Plans were made to construct a series of beaver mimicry or beaver dam analog (BDA) structures to provide a foundation for further beaver dam building and potentially entice beavers to reestablish a colony (Figure 2). The BDAs raise the local water table to reconnect with the floodplain terrace and promote the expansion of riparian plants. The pooling above the structures also provide escape cover for beaver exploring the area. The ultimate goal is that beaver adopt the analog structures and reestablish a secure and long-lasting colony that detains stream flows in the system for slow release during summer periods. Five BDA structures were built in September.

Figure 2. Beaver Dam Analog (BDA) structure constructed along Amsden Creek in Sheridan County.

Tongue River Acme Power Plant Diversion Fish Passage

A derelict sheet piling structure is located in the Tongue River alongside the decommissioned Acme Power Plant (Figure 3). The structure served as the cooling water intake for the power plant. It impedes upstream fish passage and obstructs boating along the Tongue River. It occurs at river mile 32 above Tongue River Reservoir and is the last unaddressed barrier to fish movements in the river between the mouth of Tongue Canyon and the Interstate Diversion on the Welsh property. A design study was initiated to identify options to eliminate the barrier without exacerbating any environmental contamination concerns around the old power plant. The Sheridan County Conservation District is leading the design contract with funding from the WGFD habitat trust fund. Additional funding partners are being recruited and the implementation of a passage solution at the site is expected during 2022.

Figure 3. Cooling water intake structure in the Tongue River at the old Acme Power Plant.

North Tongue River: Concerns and Regulations

In past Sheridan angler newsletters, we've written articles about the population declines in the North Tongue River. Over the last 10+ years, we have documented a downward trend in the trout population (numbers of fish/mile) and biomass (pounds of fish/mile). Wild populations, whether cottontail rabbits or fish, ebb and flow, sometimes drastically, but they generally stay within long-term highs and lows. Over the last decade or so however, this downward trend in the North Tongue has continued to sink lower and lower.

It is unclear what is causing the decline in fish abundance and there is likely not one single factor but more likely a combination of several. Natural variability (the natural ups and downs of a population), environmental factors (anchor and frazil ice, high stream flows, low stream flows, disease etc.), and high angler use (harvest and delayed hooking mortality) are all potential contributors. Other factors such as invertebrate production, available spawning habitat, overwintering habitat, and others may be contributing to the decline as well.

In 2018, creel surveys estimated that fishing pressure (angling hours) increased 40% and the number of anglers fishing increased 19% since 1999 (the last big creel survey). When broken down by river mile, we estimated 530 anglers/mile, 1,768 hours fished/mile, and 2,672 fish caught/mile; certainly some high angler use on a high mountain stream. During this creel survey, we asked anglers throughout the entire study reach their opinion on extending the catch and release portion of the river downstream and an overwhelming majority of anglers were in favor.

We have a fishery with declining fish abundance, increased use and popularity by anglers, and environmental factors all taking their toll. So what did we do? In 2021, we proposed to extend the catch and release, flies and lures only regulation from the confluence of Bull Creek downstream to Burgess Road (FS Road 15), 4.6 river miles. After considering public input, the WGFD Commission decided to extend the catch and release beginning in January 2022. In 2018, harvest outside the catch and release area (below Bull Creek) was estimated to be 1,100 fish. By extending the regulation, harvest mortality is essentially eliminated.

The WGFD have always stocked a few fish in the North Tongue and Bull Creek to augment mortality. In 2021 we increased stocking with 6,300 Snake River Cutthroat and 3,000 Rainbow trout to boost numbers. The North Tongue River is probably the most popular stream in the Sheridan region and it is our goal to get it back to prominence. Future evaluation on the North Tongue will include biennial monitoring of population trends (did our stocking help?), an extensive creel survey in 2027 (five years following the regulation change, has fishing pressure changed, what is the fishery's response?), and further whirling disease investigations. Stay tuned for future updates on the status of the North Tongue River.

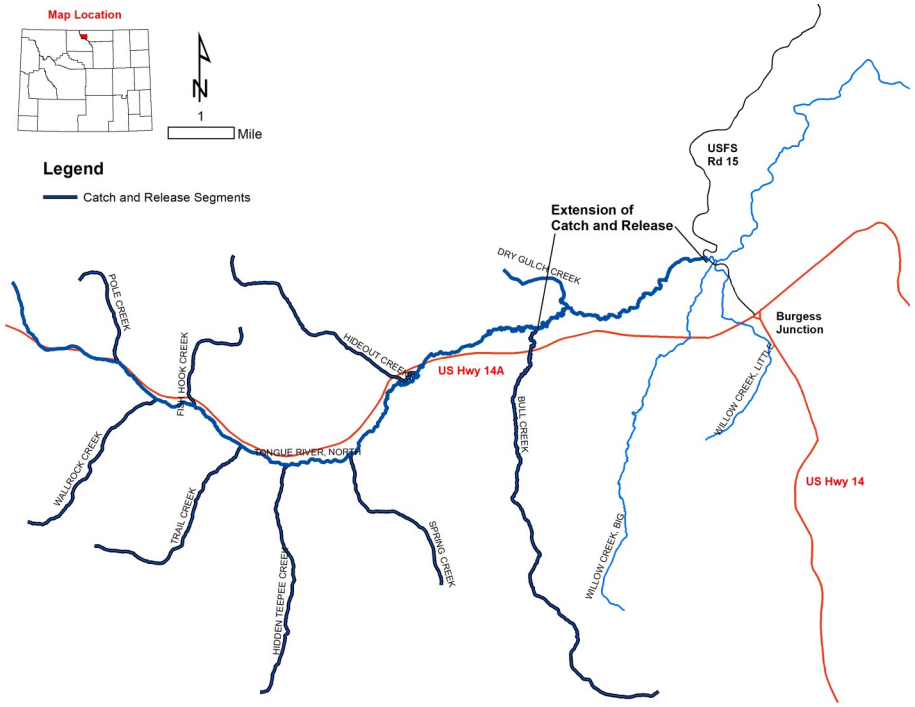


Figure left is a map of the North Tongue River and the extension of the catch and release, flies and only section from Bull Creek downstream to Burgess Road (FS Road 15). Big Willow Creek is not included in the regulation because the confluence with the North Tongue is below the Burgess Road bridge.

Sawmill Reservoir and Lakes #1 and #2

Looking to catch nice sized Yellowstone Cutthroat, Splake, or Brook Trout; look no further than the Sawmills. One of my favorite places to take the family is just a short hike down the trail from Red Grade Road. Sawmill Lakes #1 and #2 are natural lakes that are stocked with Yellowstone Cutthroat Trout and Splake. Sawmill Reservoir is a man-made waterbody that has a robust wild Brook Trout fishery and is also stocked with Splake. Stocking for these waters are done via helicopter as there is no better way to get fish there efficiently. The Splake are stocked in the reservoir every two years to prey upon Brook Trout to keep them from overpopulating and stunting. The Splake in lakes #1 and #2 were originally introduced in 2008. They have performed so well that they are now stocked every four years. The Yellowstone Cutthroat in lakes #1 and #2 have shown excellent growth rates as well, and these are also stocked every two years. In the reservoir, Brook Trout are found up to 12 inches (good sized mountain Brook Trout) and the Splake are found up to 18 inches. At lakes #1 and #2, Yellowstone Cutthroat are found up to 18 inches and the Splake are found up to 20 inches. If you're looking for a nice afternoon of mountain fishing, the Sawmill lakes and reservoir offer good opportunities.

A beautiful view at Sawmill Reservoir (top), a huge Splake from Lake #2 (left), and a gorgeous Yellowstone Cutthroat from Lake #1 (above).

AIS in Moss Balls

A zebra mussel (arrow) in a Moss ball.

Marimo Moss Balls are a common aquarium component previously unknown to Aquatic Invasive Species (AIS) programs across the USA, until becoming one of the biggest threats to Wyoming's freshwater ecosystems in early 2021.

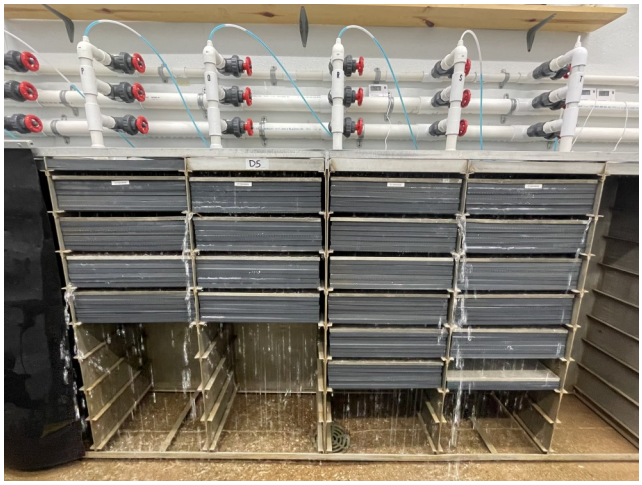
The Marimo Moss Ball story for Wyoming started when a pet store employee in Seattle reported zebra mussel contaminated moss balls, leading WGFD employees to investigate products being sold within Wyoming. Unfortunately, several stores statewide were identified with contaminated products. In total, over 30 states reported finding contaminated products in retail stores.

In 2021, AIS monitoring was expanded to include community ponds and municipal waters that could be a location for aquarium dumping. Zebra mussel juveniles are microscopic and can easily be spread hidden inside small amounts of water. Knowing the potential for zebra mussels to be dumped with aquarium water, WGFD was able to test water samples from wastewater treatment plants for mussel DNA. Luckily, no signs of zebra mussels were detected in 2021. Please remember to never release pets into the wild, as the addition of a non-native species can end up causing irreversible damage to an ecosystem. The Marimo Moss Ball situation in 2021 shows how easily AIS can be spread not only across Wyoming, but also across the whole nation. As pet owners or outdoor recreators, please always remember Don't Let it Loose and Clean, Drain, Dry to keep our waters free of invasive species.

Story Hatchery - Producing and Trading Eggs

The Story Fish Hatchery is one of the many hidden gems of the Bighorn Mountains. First opening its doors in 1909, this facility is home to five of the captive broodstocks the Wyoming Game and Fish Department utilizes to provide optimal angling opportunities for the public. A broodstock is the term used to describe a mature group of fish that are kept for spawning and repopulation purposes. The Story Fish Hatchery is home to spawning populations of Brook Trout, Brown Trout, Lake Trout, Eagle Lake Rainbow Trout, as well as the only captive broodstock of Golden Trout in the United States. Spawning refers to the process of collecting eggs from mature female fish and milt from mature male fish, and when combined, the eggs are successfully fertilized. Shortly after fertilization, the eggs are carefully placed in incubation trays which are then stacked on top of one another in a drip stack. Water is run over a spreader pan to evenly distribute flow as it drips down through the stacks to keep eggs hydrated as they develop. Fish eggs need a constant flow of water moving across them to ensure an appropriate saturation of oxygen is available as well as to keep eggs clean from any fungus that may start to grow.

Story Hatchery personnel completing the fertilization of Brown Trout by mixing the eggs with milt.



Once the eggs are fertilized and disinfected, they are placed in a drip stack, where well oxygenated water keeps the eggs hydrated as they develop.

Early stage of egg development of Eagle Lake Rainbow Trout. At this point the eggs are still too fragile to ship to other facilities.

At the Story Fish Hatchery we have fish that spawn at all different times of the year. Our Brook, Brown, and Lake trout are known as "fall spawners"; these fish reproduce between the months of September to November and eggs are often kept in our incubator until January. The Eagle Lake Rainbow Trout are "spring spawners" and produce eggs from March through May. These eggs typically ship out of our incubator in mid-summer. Last, but certainly not least, our Golden Trout are "summer spawners". We collect eggs and milt from these fish in June and the eggs leave our incubator in the late summer months. After the process of spawning and incubation, the Story Fish Hatchery crew ships eggs out to different hatcheries and rearing stations around the country so the eggs can hatch and continue to grow until they are stocked in waters for anglers to enjoy. In addition to incubating eggs collected from our own broodstocks, we also receive and incubate eggs from other Wyoming Game and Fish hatcheries including species like Bear River Cutthroat and Kokanee Salmon. Like the other species, these eggs will remain in our incubator until they develop eyes, which indicates they are strong enough to be shipped to their final destination.

Story Hatchery Cont.

Eyed Eagle Lake Rainbow Trout eggs (picture left) ready to be shipped to other in-state or out of state hatcheries. Once delivered, the receiving facility continues incubation and eventually raising of the fish to the desired size to be stocked.

Walleye (above), Channel Catfish (bottom left), and Northern Pike (bottom right) are examples of fish imported into Wyoming to provide warm-water angling opportunities. These species are acquired through trades with other states.

Each year, the Story Fish hatchery spends about 6 months spawning the various broodstocks housed at the station. These operations produce roughly 7,000,000 eggs a year, which can then be shipped to both state and national hatcheries in 14 different states! In return for the eggs that we ship to other states, we receive fish that we do not raise here in Wyoming. Here in the Sheridan region we trade eggs for species such as Walleye, Northern Pike, Largemouth Bass, Channel Catfish, and Bluegill. These fish are imported from states like North Dakota, Arkansas, and Oklahoma to be stocked into local waters. These interstate trades allow Wyoming residents to enjoy a healthy population of warm-water fish that we otherwise would not have. Providing anglers with a diverse selection of gamefish is a high priority for the Wyoming Game and Fish Department and through cooperation with other states, we are able to make this happen. The Story Fish Hatchery and Visitor Center is open to the public 8 a.m. to 5 p.m. daily, excluding holidays, so stop by and see what the crew is up to! You can also visit the Wyoming Game and Fish Department website at https://wgfd.wyo.gov/ to see what kind of fish are stocked in your favorite waters.

Bighorn Mountain Reservoirs

Big Horn Reservoir: Big Horn Reservoir is a 179-acre reservoir that is nestled behind Spear O' Wigwam off of Red Grade Road (FS RD 26). This reservoir is located on private land, but access is provided through the WGFD Walk-In Fishing program. This reservoir has been inundated with White Suckers, thus limiting and competing with the wild trout. In 2017, we stocked Tiger Musky in an attempt to find a fish that would prey upon those suckers. In 2021 we found four muskies ranging from 24 to 27 inches and the good news; they were all found to have recently eaten suckers. Another good sign is that the growth and condition of the trout appeared to be much better than before the musky were stocked. We found Brook Trout ranging from 6 to 12 inches, Brown Trout ranging from 7 to 24 inches, and Rainbow Trout ranging from 9 to 14 inches. Anglers are reminded that the size limit on Tiger Musky is 36 inches with a creel limit of only one fish. So don't overlook Big Horn Reservoir as a potential destination, it may surprise you.

Weston Reservoir: This 38-acre reservoir offers the angler a chance for two unique species; Grayling and Tiger Trout. Located four miles off of Red Grade Road (FS RD 26), a very bumpy ride on ATV via trail 239 will lead you there (please use caution and take your time). Tiger Trout have been stocked since 2014 to serve as a predator on smaller Grayling and to also provide a unique fishery. This summer, Tiger Trout were found from 7 to 14 inches and the Grayling ranged from 5 to 12 inches. Weston Reservoir is the perfect place to haul in your float-tube or kick boat.

Park Reservoir: This 356-acre reservoir offers anglers a chance to catch numerous species all in the same location. Wild (naturally reproducing) Brook and Brown trout drift downstream from the East Fork of Big Goose Creek, while Splake and Rainbow Trout are stocked annually, and Lake Trout are stocked every three years. Similar to Big Horn Reservoir, Park Reservoir is inundated with White Suckers which outcompete the trout. The stocking of Splake and Lake Trout is an attempt to get a fish big enough to prey upon the suckers. Despite the competition with suckers, all species of trout were found to range from 7 to 14 inches. Not bad for a high mountain reservoir.

Tie Hack Reservoir: This 63-acre reservoir above Buffalo has suffered a bit in recent years. The lack of snowpack, limited rains, and the continued demand for water, Tie Hack was drawn down over 50 vertical feet in 2020 and over 10 feet in 2021. Brook and Brown trout are wild and drift into the reservoir via Sourdough and the South Fork of Clear creeks. The Brook Trout have diminished significantly in the reservoir in recent years, but the Brown Trout were unscathed and provide anglers the opportunity for a trophy. Tie Hack is also stocked with 8,000 catchable sized Rainbow Trout annually.

From top to bottom: A very nice Tiger Musky from Big Horn Reservoir. This is our first attempt at using Tiger Musky as a predator at such a high elevation reservoir. So far it appears to be working.

An average Tiger Trout from Weston Reservoir. These fish are very aggressive and always seem willing to chase streamers and lures.

Despite lower water levels in recent years, Tie Hack Reservoir is still capable of producing trophy-sized Brown Trout.

Bighorn Mountain Reservoirs Cont.

Upper Twin Lakes Reservoir: This 83-acre reservoir offers anglers an opportunity for a true trophy. Wild Brook, Lake, Rainbow, and Snake River Cutthroat comprise the fishery, with most fish ranging between 10 and 16 inches. The true trophies however are the Lake Trout. If you are lucky enough to hook into one of these hogs, they could be greater than 30 inches and approaching 15 to 20 pounds (see pictures from our sampling in 2021). Upper Twin is also a great place to pack in your float-tube or kick boat.

A couple of trophy-sized Lake Trout from Upper Twin Lakes Reservoir. Early spring and late fall are generally the best chances to hook into one of these monsters.

Find Good Fishing in Your Back Yard!

You really don't have to travel far to find good places to fish for a diversity of species in the Sheridan area. Many can be reached by foot or bicycle from your front door. Some do require a short drive, but you'll be there in the blink of an eye. Ponds in the valley are first to become ice-free and warm up in the spring, stimulating fish activity. They're great for canoes and kayaks too.

A nice Channel Catfish at Kleenburn

A nice Largemouth Bass in Ranchester

In Sheridan, the Fairgrounds Pond, Mavrakis Pond, and ponds in between, stretch along the pathway through Hume Draw from behind the hospital to near Thorne Rider Park. These ponds have Largemouth Bass, Bluegill, and Rainbow Trout. Mavrakis Pond also has Channel Catfish. The Fairgrounds Pond has a small fishing pier.

Kleenburn Ponds are just a few miles north of Sheridan, next to I-90. It boasts a natural surface walking path, a primitive boat launch, and a fishing pier. There you can catch Largemouth Bass, Channel Catfish, Black Crappie, Yellow Perch, Green Sunfish, Tiger Musky, and Rainbow Trout. The Audubon Society also designated Kleenburn Ponds as an important bird area in 2018 so keep your eyes peeled above the water too.

Ranchester City Pond, in the middle of town, has a concrete walking path and a fishing pier. There is no vehicle access to the shoreline, but starting this year, you can carry in your canoe or kayak to enjoy fishing for Largemouth Bass, Bluegill, Channel Catfish, Green Sunfish, Tiger Musky, and Rainbow Trout. Use the time you're given wisely and find some water nearby to wet your line after work, or on a weekend morning before a busy day of spring cleaning – maybe to first clear your mind!

Radio-Tracking Migratory Fish in Lower Clear Creek and the Powder River

The Powder River and Clear Creek make up an Aquatic Wildlife Conservation Area in north central Wyoming with an intact native fish community and the highest fish diversity in the state. It is home to 20 native species of fish! Wyoming Game and Fish (WGFD) considers eight of them as Species of Greatest Conservation Need. Many of them also migrate long distances, some from as far away as the Yellowstone River in Montana. Fish migrations will increase as upstream fish passage improves at man-made barriers along their way in the basin in Wyoming and Montana. A bypass channel built around the Kendrick Diversion dam in 2010 was a major improvement, which restored upstream fish migrations to 36 miles of lower Clear Creek that had been completely halted for 100 years.



Fisheries Biologists captured fish with electrofishing gear (left) and trammel nets (middle) to implant fish with radio-transmitter tags (right) in Clear Creek and the Powder River.

In 2021, the WGFD began a two-year project focused on movements of large-bodied fishes using radio telemetry. Sauger, Goldeye, and Shovelnose Sturgeon were captured with nets and electrofishing gear throughout the Powder River and Clear Creek in Wyoming, surgically implanted with radio-transmitter tags, and released. Movements of radio-tagged fish were tracked with telemetry receivers at fixed locations, by foot, and from fixed-wing aircraft.



Radio-tagged Sauger (left), Goldeye (middle), and Shovelnose Sturgeon (right). Look closely and you will notice the antenna trailing from their belly.

Fish movements were informative despite streamflow that was lower than normal during 2021. Few Shovelnose Sturgeon were encountered in 2021, yet they demonstrated distant migrations throughout the entire basin over short time frames. Sauger tended to remain near where they were initially tagged, often within five miles. However, one Sauger travelled 47 miles upstream in just 16 days. Sauger were tracked while they used a bypass channel to migrate upstream of the Kendrick Diversion Dam on lower Clear Creek in 2021. Goldeye exhibited many movement patterns, including traversing Kendrick Dam on Clear Creek multiple times in both directions and traveling to the Yellowstone River. Big changes in stream flow stimulated the most dramatic movements of all three species.

Radio-Tracking Cont.



Personnel download data from a tracking station on the Powder River (left) and detect radio-tagged fish locations by aircraft (middle) and by foot (right).

Changes to the fish community in the study area are expected beginning in 2022, following the completion of a major fish passage project on the Yellowstone River at the Intake Diversion Dam near Terry, MT. The Powder River in Wyoming will likely see more Shovelnose Sturgeon and Sauger, along with seasonal influxes of really big river fish during the highest of water years – maybe even Paddlefish! Watch this recorded talk to learn more.

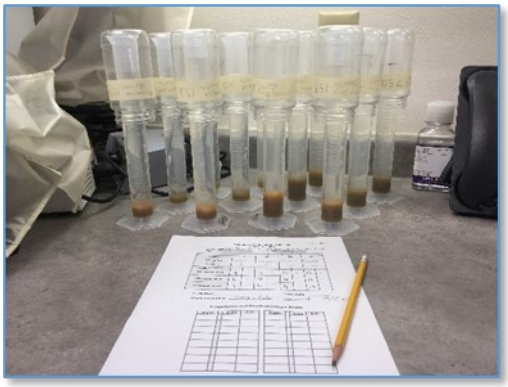
Muddy Guard Reservoir #1; Still Truckin'

A nice Rainbow (top) and Tiger trout (bottom left) from MG#1. Water level well below the boat ramp in August, 2021 (bottom right).

In early 2021, the fishery was trucking right along, dominated by Snake River Cutthroat averaging 16.7 inches and 1.87 lbs. A few nice rainbows were surveyed up to 23.7 inches, but they have become less common. Competition with cutthroat is a suspected cause of the rainbow decline, so we shifted our fish stocking to favor more Rainbow Trout. We also increased Tiger Trout stocking slightly in recent years. Although not definitive, they seem to be more common in the fishery and they are doing well. There were still some nice browns and brookies out there too.

A hot, dry summer challenged the fishery at Muddy Guard Reservoir #1 in 2021. Truly, it challenged us all! High demand for the water stored in the reservoir for irrigation drew the water level down to its minimum pool by August 12. That is the lowest point allowed by an agreement between the Game and Fish Department and the irrigation district. The minimum pool is intended to preserve the fishery but is no guarantee. Surface water temperatures remained very high for trout, in excess of 70° F, for weeks. Anglers overwhelmingly heeded a voluntary recommendation from the Department to fish elsewhere through September 2021 and avoid needless fish mortality. No fish kill was observed through ice-up. Time will tell how the fishery wintered when we come out on the other side in spring. We thank all the considerate anglers who shared our long-view for this wonderful trophy fishery and have our fingers crossed!

Lake DeSmet Brief



Zooplankton samples from Lake DeSmet

Kokanee have performed really well at Lake DeSmet and created a lot of excitement. Survival was high for the 40,000 fingerling Kokanee (3 – 4 inches) stocked in 2019. Many of these fish matured in 2021 at 3 years old. Schools of large, bright red fish swarmed shallow shoreline areas of the lake last fall and put on a spawning spectacle that attracted anglers and general wildlife enthusiasts alike. Watch underwater video of Kokanee spawning at Lake DeSmet here.

Kokanee are landlocked Sockeye Salmon and live mostly "off shore," filter feeding in open water for small crustaceans called zooplankton. Biologists survey the zooplankton population throughout the summer at DeSmet, which has so far remained plentiful and should continue supporting good Kokanee and trout growth. Some Kokanee reached 18 inches in 2021! That said, a slight drop in the body condition of Rainbow Trout over the last two years was worrisome. As a precaution, annual Kokanee stocking requests were reduced to 20,000 fingerlings for a year. Kokanee may prove to be much more efficient feeders at Lake DeSmet than the trout. We will be figuring out the new "recipe" for Lake DeSmet for a while. Speaking of recipes, here is a good one for enjoying some delicious smoked Kokanee or trout:

Brine Ingredients: 3 cups cold water, 1/2 cup soy sauce, 1/2 cup Kikkoman stir-fry sauce (green label), 1/3 cup brown sugar, 1/3 cup white sugar, 1/3 cup Kosher salt, 1/2 tsp onion powder, 1/2 tsp black pepper, 1/2 tsp garlic powder. Fillet your salmon or trout leaving skin on, whisk together all ingredients in a large bowl, place fillets and brine in large ziplock bag squeezing out any air bubbles, brine overnight up to 24 hours, rinse fillets and pat dry, smoke fish skin side down at 200°F for approximately 2 hours using apple or alder wood, smoking time will vary depending on desired doneness, number of fillets, and brand of smoker. Enjoy!!

In other DeSmet news, keep your eyes peeled for the return of cutthroat. Numbers of big predators cycled downwards and cohorts of young Lake Trout appear to be strong. Overall trends in Walleye abundance, particularly for fish over 20 inches, declined over recent years. Although this reduces your chances of catching trophies for now, it is good news for the Rainbow Trout and Kokanee fisheries. High Walleye abundance takes a big bite out of the fish we stock to sustain the fishery. Pun intended! Big Brown Trout, Walleye, and Lake Trout are still out there, and their numbers are sure to bounce back with time. We replaced a portion of the Rainbow Trout with Bear River Cutthroat Trout, which have done well in other Wyoming lakes with big predators. Lake Trout remain uncommon in our standard surveys. However, angler reports of small Lake Trout in the 18 inch range continue to suggest that the Lake Trout population is on the rise. These fish will also prey on the fish we stock, likely focusing on Kokanee, but also provide desirable quarry for anglers. We aim to find a desirable balance between the Kokanee and Lake Trout populations with time.

Biologists enjoy a nice fall day while picking gill nets at DeSmet

A 17-inch, gill netted Walleye spits out its last meal, an 8 or 9-inch fish

Cloud Peak Wilderness

When the summer weather gets hot, it's time to head for the high country. The questions are: how high do you want to go? And, what to do when you get there? For many, a little alpine bliss requires a fishing destination. There are hundreds of lakes in the Bighorns with fish of many flavors. A dance of sorts is coordinated among Game and Fish personnel who survey and assess the lakes, grow the fish to the right sizes at the right time, and get them stocked with a helicopter. It's worth it though! The Sheridan Fisheries Management Crew spends a chunk of each summer surveying alpine lakes to update information for sharing with you and to see what the lakes need. Last summer, fisheries crews surveyed lakes in the upper East Fork, Big Goose Creek drainage south of Coffeen Park. It's a fantastic area! See results below.

Lake	Species	Number Sampled	Length Range (inches)
Rinehart, Upper	Rainbow	33	6.0 - 10.3
	Yellowstone Cut	2	8.9 - 14.4
Rinehart, Lower	Rainbow	28	6.3 - 14.3
Hope	Yellowstone Cut	19	8.8 - 15.9
Golden	Yellowstone Cut	44	7.3 - 16.2
Devils	Brook	64	5.9 - 10.6
Thayer	Brook	47	6.1 - 13.2
	Lake	5*	14.5 - 14.9
	Yellowstone Cut	2	6.9 - 13.4
Lost Wilderness	Yellowstone Cut	8	7.3 - 15.7

*One 30 to 36-inch Lake Trout escaped from a net. A true behemoth!

Contact the Bighorn National Forest (307-674-2600) to answer questions about the Cloud Peak Wilderness. Please explore the WGFD Fishing Guide or contact Game and Fish at the Sheridan Regional Office (307-672-7418) for information about fishing in the wilderness.

Lost Wilderness Yellowstone Cutthroat

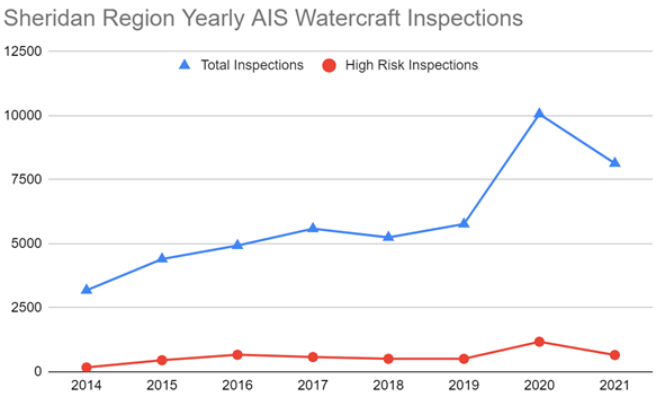
The helicopter lands to reload and stock more alpine lakes

Horse packing gear to fish camp

Navigating to Lost Wilderness Lake

Setting a net at Hope Lake

Sheridan Region AIS Update

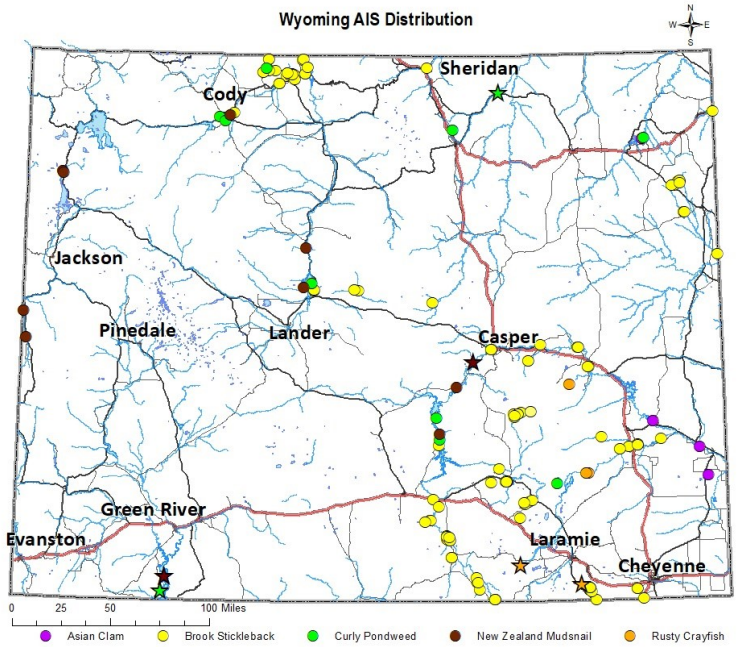


The Sheridan region Aquatic Invasive Species (AIS) crew inspected 8,138 watercraft in 2021. Of those, 656 were high risk; meaning they were last used on a water infested with quagga or zebra mussels or the watercraft contained standing water from a state that has known mussel populations. In our region alone, three watercraft entered check stations with mussels attached and underwent a complete decontamination to eliminate the risk of transporting AIS to the watercraft's destination.

After a record setting year in 2020, our check stations saw fewer numbers of boats in 2021. Unfortunately, we continue to see watercraft entering our check stations with their bilge plugs in and/or with compartments containing standing water. In 2017, AIS regulations were modified to include **"all bilge and ballast plugs and other barriers that prevent water drainage from a watercraft shall be removed or remain open while a watercraft is transported by land within the state"**. Standing water creates an increased risk for transporting AIS, as it creates an environment that allows organisms to remain viable while they are transported over land. Both microscopic juvenile mussels, called veligers, and adult mussels are able to live nearly a month in very small amounts of standing water. To reduce the chance of transporting AIS, it is important to make sure you Clean, Drain and Dry not only your boat, but any gear or equipment used.

Statewide, we continue to see the spread of AIS within Wyoming. In 2021 new populations of AIS were discovered (depicted with stars on the map) in Flaming Gorge Reservoir (curly pondweed and New Zealand mudsnails), in the North Platte River (new zealand mudsnails near Speas Rearing Station), Clear Creek near Leiter (curly pondweed), and rusty crayfish were discovered in private waters near, and in the Little Laramie River. Within the Sheridan region we currently have populations of Asian clams (Keyhole Reservoir), brook stickleback (Goose, Turner, Montana and Beaver creeks) and curly pondweed (Keyhole Reservoir, Clear Creek and Lake DeSmet).

It is great seeing high numbers of watercraft users through our check stations as so many people enjoy all of the great opportunities our waters offer. As you can see, there are several populations of AIS in Wyoming and we need all water recreators' help to stop the spread of AIS. Whether you own a boat, or are a wading angler, please always remember to CLEAN, DRAIN, and DRY all of your gear when you travel to a new waterbody. If you have any question related to AIS refer to our website at: https://wgfd.wyo.gov/Fishing-and-Boating/Aquatic-Invasive-Species-Prevention



WYOMING
CLEAN
DRAIN
DRY

Help prevent the spread of harmful Aquatic Invasive Species by becoming a Wyoming certified inspector!

2022 Watercraft Inspection Training for the Public

CLEAN DRAIN DRY WYOMING

CASPER
April 23rd; 9:00am - 4:00pm
Casper WGF Regional Office
3030 Energy Lane, Casper WY 82604

CODY
May 13th; 9:00am - 4:00pm
Cody WGF Regional Office,
2820 State Highway 120, Cody WY 82414

EVANSTON
April 23rd; 9:00am - 4:00pm
Patterson Visitor Center,
1432 Main St, Evanston WY 82930

SCOTTSBLUFF, NE
March 19th; 9:00am - 4:00pm
Platte Valley Bank
1106 Platte Valley Dr, Scottsbluff NE 6936

GREEN RIVER
April 16th; 9:00am - 4:00pm
Buckboard Marina
HC 65 Box 100, Green River WY 82935

JACKSON
June 11th; 9:00am – 4:00pm
Jackson WGF Regional Office
420 North Cache, Jackson WY 83001

KEYHOLE RESERVOIR
March 26; 9:00am – 4:00pm
Location TBD

LARAMIE
April 9th; 9:00am – 4:00pm
Laramie WGF Regional Office,
1212 S. Adams St., Laramie WY 82070

RAPID CITY, SD
April 9th; 9:00am – 4:00pm
Location TBD

SHERIDAN
April 2nd; 9:00am – 4:00pm Sheridan WGF Regional Office
700 Valley View Dr., Sheridan, WY 82801

Aquatic Invasive Species (AIS) can be aquatic animals such as zebra and quagga mussels or rusty crayfish, or aquatic vegetation such as hydrilla. These AIS can have far-reaching impacts on our water resources. Many of these species permanently change stream and lake ecology, negatively affecting native species and our prized sport fisheries. Zebra and quagga mussels can attach to water infrastructure and equipment causing damage. These species are often called "aquatic hitchhikers" because they can hitch a ride on boats, equipment, or in any water that is not drained.

The Wyoming Game and Fish Department is offering several watercraft inspection trainings in 2022. These trainings will provide the skills necessary to inspect your own watercraft and certify you to inspect other watercraft as well. The trainings include information on basic biology, impacts, transport vectors and distribution of AIS. It includes classroom instruction, a question and answer session, and a hands-on watercraft inspection exercise.

The trainings are free and open to anyone interested in preventing the spread of AIS through watercraft inspection. These trainings are being offered as a one-day course (9:00a – 4:00p). Registration deadline is one week prior to the class start date. Limited to 20 people per course.

To register: contact Josh Leonard, AIS Coordinator at (307) 721-1374 or joshua.leonard@wyo.gov. Please provide your name, mailing address, phone number, and email address. Or register online at: https://forms.gle/GrSAzwpFVAFQKopQ9
Visit: wgfd.wyo.gov/AIS for more information about AIS.

Conserving Wildlife Serving People

Wyoming Game and Fish Dept.
700 Valley View Dr.
Sheridan, WY 82801
307-672-7418

Wyoming Game and Fish Department - "Conserving Wildlife - Serving People"

Important Dates to Remember in 2022

- April 15th, 2022. **AIS check stations** begin opening across the Cowboy State.
- May 5th - May 7th, 2022. **Wyoming Outdoor Expo**: The Wyoming Game and Fish Department will once again be hosting at the Ford Wyoming Center (formally Casper Events Center). Please visit https://wgfd.wyo.gov/education for additional details.
- June 4th, 2022. **Wyoming's Free Fishing Day**. June 4th, 2022 is Free Fishing Day to coincide with the beginning of National Fishing and Boating week. Residents and nonresidents may fish Wyoming waters (excluding Wind River Indian Reservation and Yellowstone National Park) without a fishing license or conservation stamp this first Saturday in June.

Follow WGFD on Face Book and YouTube

wgfd.wyo.gov

Paul Mavrakis: Fisheries Management

Steve Diekema: Story Fish Hatchery

Gordon Edwards: Fisheries Management

Reed Moore: AIS Specialist

Upcoming Work for 2022

Thanks for taking time to view our newsletter! Please feel free to stop by our office, give us a call, or catch us out in the field. We are always happy to answer questions about fish and fishing opportunities in the Sheridan Region. Below is a list of projects upcoming for the 2022 field season. Stay tuned for updates on these waters in our next newsletter. Happy Fishing!!

- Sampling on DeSmet, Keyhole, Park, LAK, Muddy Guard #1, and Healy reservoirs.
- Sampling on smaller waters such as Kleenburn Ponds, CB&Q, Cook Lake, and Black Hills Power and Light (Osage).
- Population estimates on several reaches on the North Tongue River, Middle Fork Powder, and Clear Creek.
- Native stream surveys in the Belle Fourche River drainage. Amphibian surveys in the Bighorns and Powder River basin.
- Radio telemetry project to continue on the Powder River and lower Clear Creek tracking fish movement throughout those systems .
- A reminder to boaters that our AIS check stations will be up and running this summer at the Sheridan Visitors Center, Beulah Visitors Center, Keyhole Reservoir, and occasionally Lake DeSmet.

Becca Meigel: Story Fish Hatchery

Travis Cundy:
Aquatic Habitat Program

Andrew Nikirk: Fisheries Management

Nick Eglseder: Story Fish Hatchery.